

1                   Amendments to the Claims:

2                   This listing of claims is to replace all prior versions and listings of claims in  
3                   this application:

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5                   1. (Currently Amended) A method comprising:

6                   receiving an original digital good; and  
7                   randomly applying various forms of protection to a plurality of segments of  
8                   the original digital good to generate a plurality of protected segments to be  
9                   included in a protected digital good;

10                  generating a plurality of checkpoints, each of the checkpoints being  
11                  associated with at least one of the protected segments, the checkpoint being  
12                  operable to cause a system receiving the protected digital good to validate that at  
13                  least one protected segment with which the checkpoint is associated has not been  
14                  tampered with; and

15                  assembling the protected digital good by collecting the plurality of  
16                  protected segments, wherein at least two of the segments overlap one another, the  
17                  overlapping segments being different from each other, and the checkpoints are  
18                  inserted in the protected digital good at varying positions relative to the protected  
19                  segments with the checkpoints are associated.

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21                  2. (Original) A method as recited in claim 1, wherein the randomly applying  
22                  comprises pseudo randomly applying the various forms of protection according to  
23                  pseudo random techniques.

1       3. (Original) A method as recited in claim 1, wherein the applying comprises  
2 randomly selecting the forms of protection from a set of available forms of  
3 protection.

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5       4. (Original) A method as recited in claim 1, wherein the applying comprises  
6 applying the various forms of protection to randomly selected portions of the  
7 original digital good.

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9       5. (Original) A method as recited in claim 1, wherein the various forms of  
10 protection are selected from a group of protection tools comprising code integrity  
11 verification, acyclic code integrity verification, cyclic code integrity verification,  
12 secret key scattering, obfuscated function execution, encryption/decryption,  
13 probabilistic checking, Boolean check obfuscation, in-lining, reseeding pseudo  
14 random number generators with time varying inputs, anti-disassembly methods,  
15 varying execution paths between runs, anti-debugging methods, and time/space  
16 separation between tamper detection and response.

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18       6. (Original) A method as recited in claim 1, wherein the applying comprises  
19 applying a form of protection in which a checksum can be computed on a set of  
20 bytes of the digital good without actually reading the bytes.

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22       7. (Original) A computer-readable medium comprising computer-readable  
23 instructions that, when executed by a processor, direct a computer system to  
24 perform the method as recited in claim 1.

1       8. (Currently Amended) A method comprising:  
2           segmenting a digital good into a plurality of segments;  
3           selecting multiple segments from the plurality of segments; and  
4           transforming only the selected segments according to different protection  
5           techniques to produce a protected digital good having a composite of variously  
6           protected segments;

7           augmenting at least one segment using a certain protection technique; and  
8           inserting a checkpoint within the protected digital good but outside of the  
9           augmented segment and at a varying position relative to the augmented segment,  
10           the checkpoint being suitable to evaluate a validity of the augmented segment.

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12       9. (Original) A method as recited in claim 8, wherein at least two of the  
13           segments overlap one another.

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15       10. (Original) A method as recited in claim 8, wherein the selecting comprises  
16           randomly selecting the segments.

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18       11. (Original) A method as recited in claim 8, wherein the transforming  
19           comprises transforming the selected segments according to randomly chosen  
20           protection techniques.

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22       12. (Canceled).

1       13. (Original) A method as recited in claim 8, further comprising receiving  
2       quantitative parameters indicative of how much the protected digital good should  
3       be altered.

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5       14. (Original) A method as recited in claim 13, wherein the transforming is  
6       performed to satisfy the quantitative parameters.

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8       15. (Original) A method as recited in claim 8, wherein the protection  
9       techniques are selected from a group of protection tools comprising code integrity  
10      verification, acyclic code integrity verification, cyclic code integrity verification,  
11      secret key scattering, obfuscated function execution, encryption/decryption,  
12      probabilistic checking, Boolean check obfuscation, in-lining, reseeding pseudo  
13      random number generators with time varying inputs, anti-disassembly methods,  
14      varying execution paths between runs, anti-debugging methods, and time/space  
15      separation between tamper detection and response.

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17      16. (Original) A method as recited in claim 8, wherein the transforming  
18      comprises applying a protection technique in which a checksum can be computed  
19      on a set of bytes of the digital good without actually reading the bytes.

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21      17. (Original) A computer-readable medium comprising computer-readable  
22      instructions that, when executed by a processor, direct a computer system to  
23      perform the method as recited in claim 8.

1       18. (Currently Amended) A method comprising:

2           establishing parameters prescribing a desired quantity of protection to be  
3           applied to a software product in generating a protected software product;

4           parsing the software product into code sections;

5           selecting at least one code section;

6           augmenting the selected code section to add protection qualities to generate  
7           an augmented code section;

8           generating a checkpoint configured to cause a system receiving the  
9           augmented code section to attempt to validate that the augmented code section has  
10           not been tampered with;

11           determining a checkpoint position for the checkpoint to be inserted in the  
12           protected software product, the checkpoint position being outside of a position of  
13           the augmented code section and at an offset to the augmented section that is varied  
14           from additional checkpoint positions associated with other augmented code  
15           sections; and

16           repeating the selecting and the augmenting for different code sections until  
17           the desired quantity of protection has been applied.

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19       19. (Original) A method as recited in claim 18, wherein the establishing  
20           comprises enabling a user to enter the parameters.

1       20. (Original) A method as recited in claim 18, wherein the augmenting  
2       comprises applying a protection technique selected from a group of protection  
3       techniques comprising code integrity verification, acyclic code integrity  
4       verification, cyclic code integrity verification, secret key scattering, obfuscated  
5       function execution, encryption/decryption, probabilistic checking, Boolean check  
6       obfuscation, in-lining, reseeding pseudo random number generators with time  
7       varying inputs, anti-disassembly methods, varying execution paths between runs,  
8       anti-debugging methods, and time/space separation between tamper detection and  
9       response.

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11      21. (Original) A method as recited in claim 18, wherein the augmenting  
12      comprises applying a protection technique in which a checksum can be computed  
13      on a set of bytes of the digital good without actually reading the bytes.

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15      22. (Original) A computer-readable medium comprising computer-readable  
16      instructions that, when executed by a processor, direct a computer system to  
17      perform the method as recited in claim 18.

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19      23. (Currently Amended) A production system, comprising:  
20            a memory to store an original digital good; and  
21            a production server equipped with a set of multiple protection tools that  
22        may be used to augment the original digital good for protection purposes, the  
23        production server being configured to:  
24                parse the original digital good and apply protection tools selected  
25        from the set of protection tools only to selected portions of the original digital

1 good in a random manner to produce a protected digital good having a composite  
2 of the protected selected portions;

3 generate a plurality of checkpoints, each of the checkpoints being  
4 associated with one of the protected selected portions and causing a system  
5 receiving the protected digital good, upon encountering each of the checkpoints, to  
6 attempt to validate the protected selected portions associated with each of the  
7 checkpoints; and

8 insert the plurality of checkpoints within the protected digital good,  
9 the positions of each of the plurality of checkpoints being one of variably offset  
10 and randomly offset outside of the protected selected portions with which each of  
11 the checkpoints is associated.

12  
13 24. (Original) A production system as recited in claim 23, wherein the  
14 protection tools are selected from a group of protection tools comprising code  
15 integrity verification, acyclic code integrity verification, cyclic code integrity  
16 verification, secret key scattering, obfuscated function execution,  
17 encryption/decryption, probabilistic checking, Boolean check obfuscation, in-  
18 lining, reseeding pseudo random number generators with time varying inputs, anti-  
19 disassembly methods, varying execution paths between runs, anti-debugging  
20 methods, and time/space separation between tamper detection and response.

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22 25. (Original) A production system as recited in claim 23, wherein the  
23 production server applies a protection tool that enables a checksum to be  
24 computed on a set of bytes of the digital good without actually reading the bytes.

1       26. (Original) A production system as recited in claim 23, wherein the  
2 production server has a pseudo random generator to introduce randomness into the  
3 application of the protection tools to various portions of the original digital good.

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5       27. (Currently Amended) An obfuscation system, comprising:  
6            a parser to parse a digital good into a plurality of segments;  
7            a set of protection tools that may be applied to the segments of the digital  
8            good to augment the segments with protection qualities;  
9            a target segment selector to select at least one segment from the plurality of  
10          segments; and

11            a tool selector to select at least one protection tool from the set of protection  
12          tools and apply the selected protection tool to the selected segment so that a  
13          protection tool of the set of protection tools is applied only to a selected segment  
14          of the plurality of segments to generate a plurality of protected selected segments;  
15          and

16            a checkpoint generator to create checkpoints for at least a portion of the  
17          protected selected segments, the checkpoints being assigned positions outside of  
18          the protected selected segments at variable positions relative to each of the  
19          protected selected segments, the checkpoints being operable to cause a system  
20          receiving the plurality of protected selected segments to attempt to validate  
21          authenticity of the protected selected segments.

1       28. (Original) An obfuscation system as recited in claim 27, wherein the  
2 protection tools are selected from a group of protection tools comprising code  
3 integrity verification, acyclic code integrity verification, cyclic code integrity  
4 verification, secret key scattering, obfuscated function execution,  
5 encryption/decryption, probabilistic checking, Boolean check obfuscation, in-  
6 lining, reseeding pseudo random number generators with time varying inputs, anti-  
7 disassembly methods, varying execution paths between runs, anti-debugging  
8 methods, and time/space separation between tamper detection and response.

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10      29. (Original) An obfuscation system as recited in claim 27, wherein the target  
11 segment selector comprises a pseudo random generator to enable random selection  
12 of the segment.

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14      30. (Original) An obfuscation system as recited in claim 27, wherein the tool  
15 selector comprises a pseudo random generator to enable random selection of the  
16 protection tool.

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18      31. (Original) An obfuscation system as recited in claim 27, further  
19 comprising a quantitative unit to specify a quantity of protection qualities to be  
20 added to the digital good.

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22      32. (Currently Amended) A client-server system, comprising:  
23            a production server to randomly apply various forms of protection only to  
24 selected portions of a digital good to produce a protected digital good, the  
25 protected digital good including a plurality of one of variably and randomly placed

1       checkpoints configured to cause a system encountering the checkpoints to attempt  
2       to authenticate that the selected portions of the protected digital good have not  
3       been tampered with; and

4            a client to store and execute the protected digital good, the client being  
5       configured to, upon encountering each of the checkpoints, to evaluate the selected  
6       portions of the protected digital good to determine whether the protected digital  
7       good has been tampered with.

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9       33. (Currently Amended) One or more computer-readable media having  
10      computer-executable instructions that, when executed, direct a computing device  
11      to:

12            parse a digital good into a plurality of segments; and

13            apply multiple different protection tools to only a selected portion of the  
14      segments in a random manner to produce a protected digital good having a  
15      composite of variously protected portions; and

16            insert a plurality of checkpoints into the protected digital good at positions  
17      one of variably and randomly offset from the variously protected portions, such  
18      that upon encountering each of the plurality of checkpoints, a receiving computing  
19      system attempting to execute the protected digital good will to authenticate that  
20      variously protected portions have not been tampered with.

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22       34. (Original) One or more computer-readable media as recited in claim 33,  
23      further comprising computer-executable instructions to randomly select the  
24      protection tools from a set of available protection tools.

1 35. (Original) One or more computer-readable media as recited in claim 33,  
2 further comprising computer-executable instructions to apply the protection tools  
3 to randomly selected portions of the original digital good.

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5 36. (Original) One or more computer-readable media as recited in claim 33,  
6 wherein the protection tools are selected from a group of protection tools  
7 comprising code integrity verification, acyclic code integrity verification, cyclic  
8 code integrity verification, secret key scattering, obfuscated function execution,  
9 encryption/decryption, probabilistic checking, Boolean check obfuscation, in-  
10 lining, reseeding pseudo random number generators with time varying inputs, anti-  
11 disassembly methods, varying execution paths between runs, anti-debugging  
12 methods, and time/space separation between tamper detection and response.

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